

correspondence

Torture

SIR,—In June, Amnesty International published a monograph containing the results of three research studies conducted by its Danish Medical Group¹. The studies concerned modern methods of torture. This group, which came into being in October 1974, is the first of its kind, and its pioneer work will serve as a pattern for similar groups in other countries.

One of the reasons that this group was formed was the disclosure that in certain countries doctors have co-operated in inventing new, sophisticated ways of torture that can be used without leaving any visible evidence. To be able to prove that such methods have been used, medical experts are needed. Ingenuity in this field seems to be unlimited, but with every new revelation of torture methods, one can only hope that public opinion will have a preventative or at least restraining effect on those using them.

Thanks to the initiative of the Danish doctors, Amnesty International will form a 'Medical Advisory Board' which will encourage the forming of research and action groups in other countries and coordinate their work. Such groups have come into existence in the USA, Sweden, Holland and within the near future there may be a similar group in Britain.

Forming research and action groups is one way of helping to implement the 1975 declaration against torture that was accepted in Tokyo by the WMA General Assembly. In this declaration doctors are admonished to abstain from participating in any physical or psychological torture of prisoners. The 'Declaration of Tokyo' is an important document in a time when torture unfortunately is a matter of common occurrence in a number of countries in different parts of the world.

A doctor must refuse to participate in torturing a prisoner, but should he not also actively oppose torture? The Amnesty groups of doctors are of that opinion. As an example of what official medical organisations can do, the Swedish Medical Association has faced the question of acting on behalf of individuals or minorities that have been subjected to political persecution, torture and other inhuman treatment. As a rule, Amnesty International has initiated these actions, but the asso-

ciation has also been approached independently by its members.

Naturally, the possibilities for a medical association to have any real influence are very limited. In cases where the documentation is good, however, it has been our experience that protests to respective heads of state or other appropriate authorities can benefit prisoners and give positive results.

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¹*Evidence of Torture: Studies by the Amnesty International Danish Medical Group*. Pp. 40. (Amnesty International Publications: London). Originally published in Danish in *Ugeskrift for Laeger*, 2 May 1977.

A combination derivation of the proton-electron mass ratio

SIR,—Atkin¹, Bastin² and Kilmister³ have recently shown that a discrete algebraic theory readily generates the structures and cardinalities of the kind contemplated by Eddington⁴. In particular, Kilmister has pointed out that algebraic structures having 10 and 136 components are inevitably perpetuated by such a combinatorial approach.

It is well known that Eddington attempted to use these two numbers to account for the proton-electron mass ratio. He proposed that this ratio be identified with the ratio of the roots of the quadratic equation.

$$10m^2 - 136m + 1 = 0 \quad (1)$$

This quadratic root ratio is 1847.6 and was an adequate fit to the known experimental data for determining the proton-electron mass ratio in 1933, when this proposal was first made. When it became clear, however, that the experimental ratio was close to 1836, Eddington, with rather intricate physical justification, added factors to his original equation to approximate the new result. This procedure has rightly been criticised. As Kilmister puts it: "This is almost certainly the wrong way to go about things. We ought to realise that if we have any tenable theory at all on this point, we have one that agrees approximately with the results. In order to obtain better agreement, we need to recast the whole theory, not to patch it up by multiplications by constants whose values differ very little from unity".

Actually, Eddington could have recast his theory by dispensing with his notorious quadratic altogether. He had to do something physically plausible

with the key cardinal numbers 10 and 136 to derive 1836. From a combinatorial point of view (with one eye open to the physics) the most straightforward procedure is the following:

if we have 136 things to choose from and need to choose 2 at a time (one for the proton, one for the electron presumably) we will have $(136)(135) = 18360$ ways of choosing. If we then have to distribute these ways of choosing into 10 parts (for the 10 gravitational potentials perhaps) we end up with the desired number

$$P_2^{136}/10 = 1836. \quad (2)$$

This is close enough to the observed ratio of 1836.109 to suggest something stronger than mere coincidence.

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¹ Atkin R. H. & Bastin Ted *Int. J. theor. Phys.* 3, 449-466 (1970).

² Bastin E. W. (Ted) in *Quantum Theory and Beyond* (edit. by Bastin T.) 213-226 (Cambridge University Press London 1971).

³ Kilmister C. W. *Sir Arthur Eddington* 269-271 (Pergamon Press Oxford 1966).

⁴ Eddington Sir A.S. *Relativity Theory of Protons and Electrons* (Cambridge University Press London 1936).

Proposed terminology

SIR,—George S. Kell (23 June, page 665), is to be congratulated and applauded for inviting discussion of his proposed new terminology rather than incorporating it willy-nilly in a scientific paper. If other scientists had been as modest and careful then I doubt if the jargon would have been saddled with misleading terms like charm and colour. I, for one, am not charmed by the strangeness of the particle physicist's use of colour but I am sure that many viewers of a recent BBC science programme actually believe that quarks come in pretty shades of red and green. They have colour have they not? Physicists who indulge in purloining common adjectives to describe properties which bear no relation to the original meaning of the words should pause, reflect and be glad that at some time past they had not labelled some property 'gay', as in gay particle physicist.

George Kell has made a good try at avoiding such whimsy but should glance at a dictionary of geology where he will find 'psammitic' already in use, thereby pre-empting the root of his proposed terminology.

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